

WHAT IS CLAIMED IS:

1. A hydraulic brake apparatus for a vehicle comprising:

a pressure source for generating hydraulic pressure;

a hydraulic pressure boosting device having a pressure regulating valve for regulating the hydraulic pressure generated by said pressure source in response to braking operation by a vehicle driver;

a master cylinder for advancing a master piston by the hydraulic pressure discharged from said hydraulic pressure boosting device to discharge the hydraulic braking pressure from a master chamber;

a wheel brake cylinder operatively mounted on each wheel of said vehicle for applying braking force to said wheel with the hydraulic braking pressure discharged from said master cylinder;

pressure detecting means for detecting at least one of the hydraulic braking pressure discharged from said master cylinder and the hydraulic pressure discharged from said pressure regulating valve, and

pressure supply means for supplying the hydraulic pressure from said pressure regulating valve into a hydraulic pressure circuit including said master cylinder and said wheel brake cylinder, when the hydraulic braking pressure discharged from said master cylinder is equal to or greater than a predetermined starting reference pressure set

to be equal to or greater than hydraulic pressure corresponding to a predetermined vehicle deceleration, and/or when the hydraulic pressure discharged from said pressure regulating valve is approximately equal to or greater than said starting reference pressure.

2. A hydraulic brake apparatus as set forth in claim 1, wherein said pressure supply means begins to supply the hydraulic pressure from said pressure regulating valve into said hydraulic pressure circuit, when the hydraulic braking pressure discharged from said master cylinder is equal to or greater than said starting reference pressure, and/or when the hydraulic pressure discharged from said pressure regulating valve is approximately equal to or greater than said starting reference pressure, and wherein said pressure supply means terminates supplying the hydraulic pressure from said pressure regulating valve into said hydraulic pressure circuit, when the hydraulic braking pressure discharged from said master cylinder is lower than a predetermined terminating reference pressure, and/or when the hydraulic pressure discharged from said pressure regulating valve is lower than said terminating reference pressure.

3. A hydraulic brake apparatus as set forth in claim 2, wherein said pressure supply means includes a first switching valve disposed on a passage for connecting said master cylinder with said wheel brake cylinder, and wherein said pressure supply means is arranged to supply the

hydraulic pressure discharged from said pressure regulating valve into a first passage for connecting said first switching valve with said wheel brake cylinder, and wherein said first switching valve is placed in a closed position thereof when the hydraulic pressure is supplied from said pressure regulating valve to said hydraulic pressure circuit, to block the communication between said master cylinder and said wheel brake cylinder.

4. A hydraulic brake apparatus as set forth in claim 3, further comprising a second switching valve disposed on a second passage for connecting said pressure regulating valve with said first passage at a position between said first switching valve and said wheel brake cylinder, and wherein said first switching valve is placed in a closed position thereof and said second switching valve is placed in an open position thereof, when the hydraulic pressure is supplied from said pressure regulating valve to said hydraulic pressure circuit.

5. A hydraulic brake apparatus as set forth in claim 1, wherein said pressure supply means includes a first switching valve disposed on a passage for connecting said master cylinder with said wheel brake cylinder, and wherein said pressure supply means is arranged to supply the hydraulic pressure discharged from said pressure regulating valve into a first passage for connecting said first switching valve with said wheel brake cylinder, and wherein said first switching valve is placed in a closed position

thereof when the hydraulic pressure is supplied from said pressure regulating valve to said hydraulic pressure circuit, to block the communication between said master cylinder and said wheel brake cylinder.

6. A hydraulic brake apparatus as set forth in claim 5, further comprising a second switching valve disposed on a second passage for connecting said pressure regulating valve with said first passage at a position between said first switching valve and said wheel brake cylinder, and wherein said first switching valve is placed in a closed position thereof and said second switching valve is placed in an open position thereof, when the hydraulic pressure is supplied from said pressure regulating valve to said hydraulic pressure circuit.

7. A hydraulic brake apparatus as set forth in claim 6, wherein said first switching valve is a normally open two-port two-position solenoid operated switching valve, and wherein said second switching valve is a normally closed two-port two-position solenoid operated switching valve.